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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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6/18/03

In re the Application of: **Toshihiro ANDO et al.**

Group Art Unit: 1765

Serial No.: **09/926,188**

Cones. and Mail

Examiner: **M. Song**

Filed: **September 20, 2001**

BOX AF

P.T.O. Confirmation No.: **4371**

For: **N-TYPE SEMICONDUCTOR DIAMOND AND METHOD OF ITS MAKING**
RESPONSE UNDER 37 C.F.R. §1.116
- EXPEDITED RESPONSE -

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

June 11, 2003

Sir:

In response to the Office Action dated March 13, 2003, Applicants amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims as follows:

1. (Twice Amended) An n-type semiconductor diamond, characterized by:

a crystalline perfectness whereby:

it has impurity atoms constituted by sulfur atoms forming a single donor level of 0.38 eV,

it has a carrier mobility's temperature dependency which at a temperature (T) range in excess

of the room temperature is T-3/2 dependent, and

it has a diamond peak in its Raman spectrum, whose half width is 2.6 cm⁻¹;

a crystalline perfectness whereby:

light emission by excitons is observable; and

a crystalline perfectness whereby:

a distinct Kikuchi pattern in its reflection electron diffraction analysis is observable;

wherein said n-type semiconductor diamond exhibits crystal completeness sufficient to allow operation of said n-type semiconductor diamond as p-n junction device.